TRANSLATION OF CLAIMS AMENDED UNDER ART. 19 PCT

Sub a1

1. A method for measuring the displacement of a fluid in a conduit (3), by calculating a difference in ultrasound transit time between two transducers (1, 2; 12, 13) in one direction and in the other, characterised by the steps:

- of simultaneously exciting the two transducers (1, 2; 12; 13), then

- simultaneously measuring signals received at each one of the transducers originating from the other transducer,

and by a step of synchronously digitizing the signals received at each one of the transducers.

2. The method according to claim 1, characterised in that the step of simultaneous excitation is performed using a single circuit (16).

3. The method according to claim 1 or 2, characterised in that calculation of the difference in transit time comprises interrcorrelating signals received at each one of the transducers and seeking an intercorrelation maximum.

4. The method according to claim 1 or 2, characterised in that the calculation of the difference in transit time comprises intercorrelating received signals, calculating the Hilbert transform of intercorrelation, and seeking zeros of the Hilbert transform.

and C6

5. The method according to claim 4, characterised in that the seeking of zeros is performed by polynomial interpolation of the Hilbert transform, preferably by interpolation using a third degree polynomial.

6. The method according to one of claims 1-5, characterised in that it comprises a calibration step by measuring ultrasound propagation time outside the fluid vein.

7. The method according to claim 6, characterised in that the calibration step comprises measurement of transit time between the transducers for two fluids of different and known velocities.

8. The method according to one of claims 1-7, characterised in that it comprises a step of correcting values of ultrasound propagation time outside the fluid vein, as a function of temperature.

9. A driver circuit for a device for measuring displacement of the fluid in a conduit (3), with at least two transducers (1, 2; 12, 13) defining a measurement chord, the circuit comprising:

- means for simultaneously exciting (16) two transducers;
- means (17, 18) for simultaneously measuring received signals at each one of the transducers originating from the other; and
- switching means (15) for successively connecting the excitation means and measurement means to the terminals (10, 11) of the transducers,

as well as means for synchronously digitizing signals received at one of the transducers.

10. A circuit according to claim 9, characterised in that the switching means comprise a multiplexing circuit.

11. A circuit according to claim 9 or 10, characterised in that the measurement means comprise at least one amplifier (19, 20) and at least one analog/digital converter (21, 22).

12. A device for measuring fluid displacement in a conduit, comprising at least two transducers and a driver circuit according to claim 9, 10 or 11.